

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER TAKEDA 11
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (If known, see 37 CFR 1.5) 09/762202
INTERNATIONAL APPLICATION NO. PCT/JP99/07350	INTERNATIONAL FILING DATE 27 December 1999	PRIORITY CLAIMED 03 June 1999
TITLE OF INVENTION MOBILE COMMUNICATION UNIT WITH BONE CONDUCTION SPEAKER		
APPLICANT(S) FOR DO/EO/US Takeshi TAKEDA		
<p>Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:</p> <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1). 4. <input type="checkbox"/> The US has been elected in a Demand by the expiration of 19 months from the priority date (PCT Article 31) 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input type="checkbox"/> is attached hereto (required only if not transmitted by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <p>Items 11. to 16. below concern document(s) or information included:</p> <ol style="list-style-type: none"> 11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An Assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 14. <input type="checkbox"/> A substitute specification. 15. <input type="checkbox"/> A change of power of attorney and/or address letter. 16. <input type="checkbox"/> Other items or information: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Courtesy copy of the first page of the International Publication (WO 00/76184). <input checked="" type="checkbox"/> Formal drawings, 1 sheet, Figure 1-1. <input checked="" type="checkbox"/> Courtesy Copy of the International Search Report. 		

U.S. APPLICATION NO. (If known, see 37 CFR 1.5) <div style="font-size: 24pt; font-weight: bold;">09/762202</div>	International Application No PCT/JP99/07350	Attorney's Docket No TAKEDA 11
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17. [xx] The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a)(1)-(5):
 Neither international preliminary examination fee (37 CFR 1.482)
 nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO
 and International Search Report not prepared by the EPO or JPO.....**\$1000.00**

International preliminary examination fee (37 CFR 1.482) not paid to
 USPTO but International Search Report prepared by the EPO or JPO.....**\$860.00**

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but
 international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....**\$710.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482)
 but all claims did not satisfy provisions of PCT Article 33(1)-(4).....**\$690.00**

International preliminary examination fee paid to USPTO (37 CFR 1.482)
 and all claims satisfied provisions of PCT Article 33(1)-(4).....**\$100.00**

ENTER APPROPRIATE BASIC FEE AMOUNT =

Surcharge of **\$130.00** for furnishing the oath or declaration later than [] 20 [] 30
 months from the earliest claimed priority date (37 CFR 1.492(e)).

Claims as Originally Presented	Number Filed	Number Extra	Rate		
Total Claims	5 - 20		X \$18.00	\$	
Independent Claims	1 - 3		X \$80.00	\$	
Multiple Dependent Claims (if applicable)			+\$270.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 860.00	

Claims After Post Filing Prel. Amend	Number Filed	Number Extra	Rate		
Total Claims	- 20		X \$18.00	\$	
Independent Claims	- 3		X \$78.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 860.00	

Reduction of 1/2 for filing by small entity, if applicable. Applicant claims small entity
 status. See 37 CFR 1.27.

SUBTOTAL =

Processing fee of **\$130.00** for furnishing the English translation later than [] 20 [] 30
 months from the earliest claimed priority date (37 CFR 1.492(f)).

TOTAL NATIONAL FEE =

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
 accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **\$40.00** per property +

TOTAL FEES ENCLOSED =

	Amount to be:	
	refunded	\$
	charged	\$

CALCULATIONS PTO USE ONLY

a. [] A check in the amount of \$_____ to cover the above fees is enclosed.

b. [X] Credit Card Payment Form (PTO-2038), authorizing payment in the amount of \$ 430.00, is attached.

c. [] Please charge my Deposit Account No. **02-4035** in the amount of \$_____ to cover the above fees.
 A duplicate copy of this sheet is enclosed.

d. [XX] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment
 to Deposit Account No. **02-4035**. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or
 (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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SIGNATURE

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NAME

25,618

REGISTRATION NUMBER

SPECIFICATION

MOBILE COMMUNICATION UNIT WITH BONE CONDUCTION SPEAKER

5 FIELD OF THE INVENTION

10 The present invention relates to a mobile communication unit provided with a bone conduction speaker, and more particularly to the mobile communication unit of a wrist-mounted type in which: an ordinary air-conduction speaker is removed from a main body of the mobile communication unit; and, in place of such ordinary speaker, a bone conduction speaker is detachably mounted on a finger tip of a user for receiving a voice sound without using the user's ears.

BACKGROUND OF THE INVENTION

15 In recent years, a mobile communication unit such as a cell phone unit, a PHS (personal handy-phone system) and the like has been considerably reduced in size and in weight. However, such a mobile communication unit has its essential construction remain substantially unchanged. In other words, the mobile communication unit is essentially constructed of its components contained in a single-piece casing, which components are, for example such as: a wireless telephone functional portion; a battery portion; a display portion; a control portion; a microphone portion; and, an ordinary air-conduction speaker portion. Consequently, in use, it is
20 necessary for the user of such mobile communication unit to have his/her ear and mouth disposed adjacent to the air-conduction speaker portion and the microphone portion of the mobile communication unit, respectively. Due to this, it is difficult to further downsize the today's mobile communication unit having the above essential
25

construction.

Although there are various types of external components such as external ear phones and external microphones which are connected with the mobile communication system when used in place of the system's built-in speaker and microphone, any one of these external components is connected with the mobile communication system through an electric connecting cord. Due to the presence of this connecting cord, handling of such external components is relatively cumbersome, which impairs the mobile communication system in portability and in wearability (i.e., suitability for being worn or fit). This makes it difficult for the user of this type of mobile communication unit to immediately answer a telephone call.

In this connection, an ultra-compact mobile communication unit of a wrist-mounted type has been experimentally developed. However, in use, when the user has a speaker portion of this type of ultra-compact unit brought into contact with his/her ear to answer a phone call, it is impossible for the user to have a microphone portion of this ultra-compact unit disposed adjacent to his/her mouth, which makes it difficult for the microphone portion of the unit to catch the user's voice sound. Further, in the case where an external earphone is used in place of the speaker portion of this wrist-mounted type ultra-compact mobile communication unit, an electric connecting cord extending from the user's wrist to his/her ear is a must for such wrist-mounted type unit. However, the presence of this connecting cord impairs such wrist-mounted type unit in wearability (i.e., suitability for being worn).

As described above, the wrist-mounted type ultra-compact mobile communication unit, which is much smaller in size than a conventional cell phone and the like, suffers from various types

of disadvantages. Consequently, it is an object of the present invention to provide an ultra-compact mobile communication unit which is smaller in size and lighter in weight. Furthermore, this ultra-compact mobile communication unit enables a user thereof to easily perceive any sounds in communication even in a high-noise environment, and also enables the user to speak in a whisper without making the people around the user uncomfortable.

10 The ultra-compact mobile communication unit of the present invention may be any one of cell phones, personal handy-phone systems and the like, which one is characterized by its bone conduction speaker. This bone conduction speaker is separated from a main body of the mobile communication unit, and enables its user to catch any voice sound received by the mobile communication unit, without fail.

15 Further, the present invention is characterized in that the ultra-compact mobile communication unit is detachably mounted on an inner side of the user's wrist with the use of a band and the like.

20 Still further, the present invention is characterized in that the ultra-compact mobile communication unit uses a bone conduction speaker provided with a vibrating portion, wherein the vibrating portion of the bone conduction speaker has its rear surface formed into a finger-mounted portion which assumes a cap shape or a ring shape to enable the bone conduction speaker to be mounted on a finger tip of the user.

25 Further, the present invention is characterized in that an electric connecting cord through which the bone conduction speaker is electrically connected with a main body of the ultra-compact mobile communication unit is capable of being withdrawn into the

main body of the unit by using a take-up reel and like means which is mounted in the main body of the mobile communication unit.

Still further, the present invention is characterized in that the main body of the ultra-compact mobile communication unit is provided with a clip in a rear side of the main body, wherein the clip enables the main body of the mobile communication unit to be mounted on a band of the user's wrist watch.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is a view illustrating an embodiment of the mobile communication unit of the present invention, wherein the mobile communication unit is provided with a bone conduction speaker.

BEST MODE FOR CARRYING OUT THE INVENTION

With reference to the accompanying drawing, an embodiment or best mode of the present invention will be described. As shown in Fig. 1, a mobile communication unit of the present invention is provided with a bone conduction speaker 1, and is constructed of: a main body casing 2 containing therein the bone conduction speaker 1, a speaker amplifier, a microphone amplifier and a battery; a microphone portion 3 which is disposed inside the main body casing 2 so as to be adjacent to a lower portion of the main body casing 2; and, an electric connecting cord 4 for electrically connecting the main body casing 2 with the bone conduction speaker 1. Incidentally, preferably, the connecting cord 4 is capable of being withdrawn into the main body casing 2 by using a take-up reel and like means.

The bone conduction speaker 1 is connected with the main body casing 2 through the connecting cord 4 which has a length of

approximately 15 cm. If necessary, a finger-mounted portion 5, which assumes a cap shape or a ring shape, is provided in a rear surface of a vibrating portion of the bone conduction speaker 1. The main body casing 2 of the mobile communication unit is mounted on an inner side of a wrist of the user by using a band 6 and the like. It is also possible to provide a clip in a rear side of the main body casing 2 of the mobile communication unit, through which clip the main body casing 2 of the mobile communication unit is mounted on a band of the user's wrist watch.

In the above construction of the present invention, when the user makes or answers a phone call, one or two of his/her fingers (in general, his/her first finger and thumb) is or are inserted into the finger-mounted portion 5 of the bone conduction speaker 1 to have the bone conduction speaker 1 brought into soft contact with his/her forehead, temple, cheekbone or an area between his/her eyes in order to catch a received voice sound. In the case of the sending of a phone call, since the microphone portion 3 of the main body casing 2 of the mobile communication unit mounted on the inner side of the user's wrist is capable of being disposed adjacent to the user's mouth, it is possible for the microphone portion 3 of the mobile communication unit to sufficiently catch the user's voice sound.

When the microphone portion 3 of the mobile communication unit is disposed in the inner side of the user's hand, it is possible for the user to cover his/her mouth with his/her hand while he/she talks with someone by using the mobile communication unit, which makes it possible for the user to speak in a whisper much smaller in level than that he/she uses in one-piece communication units such as a cell phone, a personal handy-phone system, a radio

communication unit or the like.

INDUSTRIAL APPLICABILITY

The present invention having the above construction is
5 characterized as follows:

- 1) it is possible for the user to have his/her ears be free from the built-in speaker portion of the mobile communication unit in use. This releases the mobile communication unit from its minimum size restriction on its heretofore required distance between the
10 mouth and the ear of the user, and therefore makes it possible to further downsize the main body of the mobile communication unit;
- 2) the mobile communication unit enables its user to easily perceive any voice sound in communication even in a high-noise environment, and also enables the user to speak in a whisper without making the people around him/her uncomfortable, wherein such whisper
15 is much smaller in sound level than that he/she uses in one-piece communication units such as a cell phone, a personal handy-phone system, a radio communication unit or the like;
- 3) the mobile communication unit is of a wrist-mounted type which
20 is excellent in wearability (i.e., suitability for being worn) and in portability when the mobile communication unit is not used, wherein the mobile communication unit of the wrist-mounted type enables its user to relax his/her position when he/she uses the mobile communication unit; and
- 25 4) since the mobile communication unit is capable of sending its received voice sound signal directly to the user's hearing organ by means of the bone conduction speaker, the mobile communication unit is helpful to even a user suffering from adventitious slight hearing loss due to his/her senility and the like.

Consequently, the above-mentioned characterized features of the present invention are capable of further fueling the demand for the mobile communication unit, and therefore have a large economic effect on the communication industry.

1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400</
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CLAIMS

1. A mobile communication unit such as a cell phone, a personal handy-phone system and the like, characterized in that: a speaker, through which a user listens for a received voice sound, is separated from a main body of said mobile communication unit; and, said speaker is a bone conduction speaker.
2. The mobile communication unit as set forth in claim 1, characterized in that: said main body of said mobile communication unit is mounted on an inner side of a user's wrist by means of a band and the like.
3. The mobile communication unit as set forth in claim 1, characterized in that: a finger-mounted portion is provided in a rear surface of a vibrating portion of said bone conduction speaker, wherein said finger-mounted portion of said bone conduction speaker assumes a cap shape or a ring shape; and, said bone conduction speaker is mounted on a finger tip of the user through said finger-mounted portion thereof.
4. The mobile communication unit as set forth in claim 1, characterized in that: an electric connecting cord for connecting said bone conduction speaker with said main body of said mobile communication unit is withdrawn into said main body of said mobile communication unit by means of a take-up reel and like means.
5. The mobile communication unit as set forth in claim 1, characterized in that: a clip is provided in a rear side of said

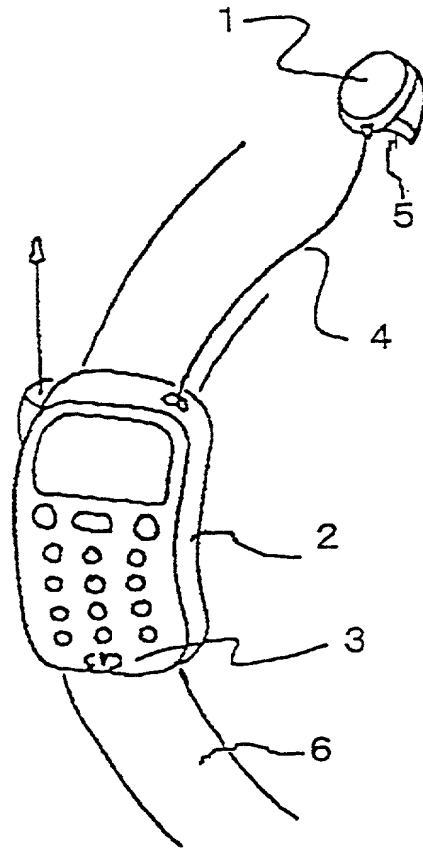
main body of said mobile communication unit; and, said clip enables said main body of said mobile communication unit to be mounted on a band of a wrist watch of the user.

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

ABSTRACT OF THE DISCLOSURE

The object is to provide an ultra-compact mobile communication unit which is smaller in size and lighter in weight. Furthermore, this ultra-compact mobile communication unit enables a user thereof to easily perceive any sounds in communication even in a high-noise environment, and also enables the user to speak in a whisper without making the people around the user uncomfortable. The ultra-compact mobile communication unit is characterized by its bone conduction speaker 1. This bone conduction speaker 1 is separated from the mobile communication unit's main body 2, and used in place of the mobile communication unit's main body's speaker and an external earphone connected with the mobile communication unit.

FIG. 1



Combined Declaration for Patent Application and Power of Attorney

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and that I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

MOBILE COMMUNICATION UNIT WITH BONE CONDUCTION SPEAKER

the specification of which (check one)

- [] is attached hereto;
 [] was filed in the United States under 35 U.S.C. §111 on _____, as
 U.S. Appln. No. _____*, or
 [] was/will be filed in the U.S. under 35 U.S.C. §371 by entry into the U.S. national stage of an international
 (PCT) application, PCT/_____; filed _____, entry requested on
 _____*, national stage application received U.S. Appln. No. _____*, §371/§102(e)
 date _____* (* if known)

and was amended on _____ (if applicable).
(include dates of amendments under PCT Art. 19 and 34 if PCT)

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above; and I acknowledge the duty to disclose to the Patent and Trademark Office (PTO) all information known by me to be material to patentability as defined in 37 C.F.R. §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §§ 119 (a)-(d) and 365 (b) of any prior foreign application(s) for patent or inventor's certificate, or §365(a) of any prior PCT application(s) designating a country other than the U.S., listed below with the "Yes" box checked, and have also identified below, by checking the "No" box, any foreign application for patent or inventor's certificate or PCT international application having a filing date before that of the application on which priority is claimed:

<u>11-156262</u>	<u>Japan</u>	<u>June 3, 1999</u>	<input checked="" type="checkbox"/> []	<input type="checkbox"/> []
(Number)	(Country)	(Day Month Year Filed)	YES	NO
_____	_____	_____	<input type="checkbox"/> []	<input type="checkbox"/> []
(Number)	(Country)	(Day Month Year Filed)	YES	NO

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional applications listed below:

_____	_____
(Application No.)	(Day Month Year Filed)
_____	_____
(Application No.)	(Day Month Year Filed)

I hereby claim the benefit under 35 U.S.C. §120 of any prior U.S. non-provisional application(s) or under §365(c) of any prior PCT international application(s) designating the U.S., listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in such U.S. or PCT international application in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose to the PTO all information which is material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

_____	_____	_____
(Application No.)	(Day Month Year Filed)	(Status: patented, pending, abandoned)
_____	_____	_____
(Application No.)	(Day Month Year Filed)	(Status: patented, pending, abandoned)

As a named inventor, I hereby appoint the following registered practitioners to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

All of the practitioners associated with Customer Number 001444

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The undersigned hereby authorizes the U.S. Attorneys or Agents appointed herein to accept and follow instructions from _____ as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. Attorneys or Agents and the undersigned. In the event of a change of the persons from whom instructions may be taken, the U.S. Attorneys or Agents appointed herein will be so notified by the undersigned.

Title: _____

U.S. Application filed _____, Serial No. _____

PCT Application filed _____, Serial No. _____

I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST INVENTOR Takeshi TAKEDA		INVENTOR'S SIGNATURE 	DATE December 10, 2000
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FULL NAME OF SECOND JOINT INVENTOR		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
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FULL NAME OF THIRD JOINT INVENTOR		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF FOURTH JOINT INVENTOR		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF FIFTH JOINT INVENTOR		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF SIXTH JOINT INVENTOR		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF SEVENTH JOINT INVENTOR		INVENTOR'S SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			

ALL INVENTORS MUST REVIEW APPLICATION AND DECLARATION BEFORE SIGNING. ALL ALTERATIONS MUST BE INITIALED AND DATED BY ALL INVENTORS PRIOR TO EXECUTION. NO ALTERATIONS CAN BE MADE AFTER THE DECLARATION IS SIGNED. ALL PAGES OF DECLARATION MUST BE SEEN BY ALL INVENTORS.